**SCHEME OF WORK OF MATHEMATICS PRIMARY SIX**

**THE CITY OF KIGALI**

**DISTRICT : GASABO**

**ACADEMIC YEAR: 2022-2023**

**SUBJECT: MATHEMATICS**

**CLASS: PRIMARY SIX (P6)**

**TEACHER'S NAME: ……………………………………………………… SCHOOL……………………………………………………….. SECTOR……………………………………………..**

**NUMBER OF PERIODS PER WEEK: 8 PERIODS……………**

 **FIRST TERM**

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| ***DATES******&******WEEKS*** | ***UNIT TITLE*** | ***LESSON TITLES***  | ***LEARNING OBJECTIVES*** | ***TEACHING METHODS&TECHNIQUES*** | ***RESOURCES******AND*** ***REFERENCES***  | ***OBERVATION*** |
| ***WEEK 1******26-30/09/2022*** | ***Unit 1: Reading, writing and comparing whole numbers beyond 1,000,000*** | **Lesson1**: Reading and writing numbers beyond 1000 000 in words**Lesson 2**: Reading and writing numbers beyond 1000 000 in figures  | **Knowledge and understanding**: * Identify the place values of digits beyond 1000 000
* Read and write numbers correctly
* Describe steps taken when rounding off numbers.

**Skills:** - Compare numbers- carry out addition, subtraction, multiplication and division of numbers beyond 1000 000 **Attitudes and values:*** Appreciate the importance of accuracy in reading and writing numbers and assessing how big there are.

***Key unit competence:*** To be able to read, write and compare whole numbers beyond 1000 000. | * Written work
* Question and answer
* Game play
* Written evaluation
 | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali. Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda (MASTEP Page 1-32 )  |  |
| ***WEEK 2******03-07/10/2022*** ***WEEK 3******10-14/10/2022******WEEK 4*** ***17 -21/10/2022*** | **Lesson 3**: Place values and comparing numbers **Lesson 4**: Solving problems using calculation strategies**Lesson5**: Rounding to the nearest (tens, hundreds, thousands, etc).***UNIT ASSESSMENT*** |  |
| ***Unit2: Multiplication and division of Integers***  | . **Lesson** 1: Multiplication of integers**Lesson 2**: Division of integers**Lesson 3**: Solving problems involving multiplication and division of integers.***UNIT ASSESSMENT*** | **Knowledge and understanding:** Describe the steps taken when multiplying and dividing integers.**Skills:** Carry out multiplication and division of integers.**Attitudes and values:** Appreciate the importance of accuracy in multiplication and division of integers.***Key unit competence:*** To be able to multiply and divide integers. | * Written work
* Question and answer

Oral and written evaluation.  | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.. Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.(MASTEP Page 33-40)  |  |
| ***WEEK 5******24-28/10/2022*** | ***Unit 3;******Powers and Indices, LCM and GCF.*** | **Lesson1**: Definition of “base” and “exponent”**Lesson2**: Multiplication and division of indices **Lesson3**: LCM and GCF | **Knowledge and understanding:** * Explain the term “base’ and “exponent”
* State and Explain the laws of indices involving multiplication and division of indices

**Skills:** - Apply the laws of indices in multiplication and division* Apply the LCM and GCF in solving problems.

**Attitudes and values:** Learners should respect each other when they are working in groups.***Key unit competence:*** To be able to use powers and indices, and apply the Lowest Common Multiple (LCM) and Greatest Common Factor (GCF) when solving problems.  | * Written work
* Question and answer
* Game play

Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali. Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.(MASTEP Page 41-54 ) |  |
| ***WEEK 6******31/10-04/11/2022*** | **Lesson 4**: Solving problems involving LCM and GCF (Application of LCM and GCF) ***UNIT ASSESSMENT*** |  |
| ***WEEK 7******07-11/11/2022*** | ***Unit 4: Operation on fractions***  | **Lesson 1**: Multiplication and Division of fractions**Lesson 2:** Solve problems involving multiplication and division of fractions. | **Knowledge and understanding:** Explain how to multiply and divide fractions**Skills:** - Multiply and divide fractions* Calculate word problems involving fractions.

**Attitudes and values**: Appreciate the importance of fraction in daily life situation.***Key unit competence:*** To be able to apply fraction in daily life situation and solve related problems. | * written work
* Questions and answers
* Game play

Oral and written evaluation | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali. Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.(MASTEP Page 55-68 ) |  |
|  ***WEEK 8******14-18/11/2022*** | **Lesson 3:** Application of Fractions***UNIT ASSESSMENT*** |  |
| ***WEEK 9******21-25/11/202******WEEK 10******28-02/12/2022*** | ***Unit 5: Rounding and conversion of decimal fractions / numbers*** | **Lesson1**: Conversion of fractions to decimal and vice versa**Lesson 2**: Round off decimal numbers to the nearest (tenths, hundredths, etc.) **Lesson 3**: Solving problems involving rounding and conversion. ***UNIT ASSESSMENT*** | **Knowledge and understanding**: * Describe various steps taken when rounding off numbers
* Illustrates and explain how to match fractions and decimals

**Skills:** - Apply the knowledge required to match fraction and decimals* Carry out various calculations rounding off numbers

 **Attitudes and values:** Confidently and accuracy should be exhibited among learners in groups***Key unit competence:*** To be able to round off decimals, Convert fractions to decimals and vice versa, matching fractions and decimals. | * written work
* Questions and answers

Oral and written evaluation.  | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali. Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.(MASTEP Page 69-82 )  |  |
| ***WEEK 11******05-09/12/2022*** |  ***REVISION PERIOD*** |
| ***WEEK 12******12-16/12/2022*** |  ***EXAMINATIONS PERIOD*** |
| ***WEEK 13******19-23/12/2022*** |  ***MARKING AND MAKING SCHOOL REPORTS*** |

 **SECOND TERM**

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| ***DATES******&******WEEKS*** | ***UNIT TITLE*** | ***LESSON TITLES***  | ***LEARNING OBJECTIVES*** | ***TEACHING METHODS&TECHNIQUES*** | ***RESOURCES******AND*** ***REFERRENCES*** | ***OBERVATION*** |
| ***WEEK 1******09-13/1/2023*** | ***Unit 6: Ratios, Proportions, Percentages and Mixtures*** | \*Correction of examination of first term ( 2 periods ) **Lesson 1**: Percentages* Conversion of fraction to decimals to fractions and vice versa
* Comparing quantities as percentages
* Increase or decrease a given number by a given percentage.
* Finding percentage profit and percentage loss.
 | **Knowledge and understanding:*** Explain the meaning and the role of percentages
* Explain the relationship between ratios and proportions
* Describe different ways of working out mixtures

**Skills:** * Apply percentages, ratios, proportions and mixtures in solving mathematical problems
* Convert percentages to decimals and vice versa

**Attitudes and values:**Acknowledge the importance of percentages, ratios, mixtures and proportions in daily life situations | * Written work
* Questions and answers
* Game play
 | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda .(MASTEP Page 83-118 ) |  |
| ***WEEK 2******16-20/01/2023*** | **Lesson 2**: Ratios**Lesson 3:** Proportions |  |
|  |  |  | ***Key unit competence:*** To be able to work out ratios, proportions, percentages and mixtures |  Oral and Written evaluation |  |  |
| ***WEEK 3******23-27/01/2023*** | **Lesson 4**: Mixtures* Average price of the mixtures
* The price of one type of the mixtures
* Quantity of one type of the mixtures
* Quantities of both types of mixtures.

**Lesson 5:** Solving of word problems involving ratios, percentages, mixtures and inverse proportions. ***UNIT ASSESSMENT*** |  |
| ***WEEK 4******30-03/02/2023*** | ***Unit 7: Relationship between Volume, Capacity and mass.*** | **Lesson 1:** Relationship between volume, capacity and mass**Lesson 2:** Conversion between units of volume, capacity and mass. ***UNIT ASSESSMENT*** | **Knowledge and understanding:*** State the units of length, capacity and mass in solving problems
* Explain the relationship between volume, capacity and mass in the case of water

**Skills:** * Convert between the units of volume, capacity and mass
* Solve problems involving the relationship between volume, capacity and mass measurements

**Attitudes and values**: * Show respect to one another when working in group
* Show spirit of tolerance when you are with your friend in a group.

**Key unit competence**: To be able to convert between units of volume, capacity and mass. | * Written work
* Questions and answers

Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali. Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.(MASTEP Page 119-132 ) |  |
| ***WEEK 5******06-10/2/2023*** | ***Unit 8: Speed, distance and time.*** | **Lesson 1:** Conversion from 12-hr clock to 24-hr clock and vice versa.**Lesson 2:** Mathematical problems that related to different time zones (e.g. Rwanda and America)**Lesson 3:** Speed, distance and time | **Knowledge and understanding**: * Explain relationship between a 12-hour clock and a 24-hour clock
* Define speed, distance and time
* Identify different units of speed, distance and time.
* Explain what determines time zones

**Skills:*** Solve the problems relate to different time zones
* Solve simple problems involving the calculation of speed, distance and time in real life situation

**Attitudes and values:**Appreciate the relationship between speed, distance and time to understand the notion of time management. ***Key unit competence***: To be able to calculate speed, distance and time, Solve problems related to different time zones and convert speed from km / hr to m / sec and vice versa. | * Written work
* Question and answer

Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali. Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda.(MASTEP Page 133-149 ) |  |
| ***WEEK 6******13-17/03/2023*** | **Lesson 3:** Conversion of speed from km / hr to m / sec and vice versa.**Lesson 4:** Moving bodies and Problems related to speed, distance and time.***UNIT ASSESSMENT*** |  |

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| ***WEEK 7******20-24/02/2023*** | ***Unit 9: Simple interest and problem involving saving.*** | **Lesson 1**: Calculating simple interest, rate, principal and time.**Lesson 2**: Problems involving simple interest, rates, principal and time. | **Knowledge and understanding**:* Define the different terms such as simple interest, rate, principal and time.
* Explain the importance of saving

**Skills:** * Solve the problems involving saving
* Solve the problems involving calculation of simple interest

**Attitudes and values:**Appreciate the importance of simple interest and saving in daily life situation***Key unit competence***: To be able to work out simple interest and solve problems involving saving. | * Written work
* Questions and answers

Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali. Mathematics for Rwanda Schools, Learners book. Kigali, Rwanda. (MASTEP Page 151-171) |  |
| ***WEEK 8******27/02-03/03/2023*** | **Lesson 3:** Saving: Saving money in the bank, or putting it in investments.**Lesson 4**: Problems involving saving and simple interest.***UNIT ASSESSMENT*** |  |
| ***WEEK 9******6-10/3/2023*** | ***Unit 10: Equivalent expressions and number sequences*** | **Lesson 1**: Algebraic expressions**Lesson 2**: Equivalent expressions E.g. $3\left(n-2\right) + n+5=4n-1$**Lesson3**: Examples of linear sequences or number sequences with general terms. e.g. 3, 7, 11, ………, 4n-1**Lesson 4:** Finding the missing numbers or nth term in a linear sequence / numbers **Lesson 5**: Finding the general term / rule of a linear sequence.***UNIT ASSESSMENT*** | **Knowledge and understanding:** * Give examples of algebraic expressions and equivalent expressions
* Explain how to find the rule for determining the nth term in linear sequence

**Skills:*** Perform operations on algebraic expressions and explain why 2 expressions are equivalent
* Calculate the nth term of linear sequence
* Find the missing numbers in a linear sequence.

**Attitudes and values:**Appreciate the importance of orderliness in finding out different terms of a linear sequence and extent it to real life situation. ***Key unit competence***: To be able to write sequence of whole numbers, fractions and decimals.  | * written work
* Questions and answers

Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali. Mathematics for Rwanda Schools, Learners book.(MASTEP Page173-186) |  |
| ***WEEK 10******13/17/03/2023*** |  **REVISION PERIOD** |
| ***WEEK 11******20-24/03/2023*** |  **EXAMINATIONS PERIOD** |
| ***WEEK 12******27-31/3/2023*** |  **MARKING AND MAKING SCHOOL REPORTS**  |

 **THIRD TERM**

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| ***DATES******&******WEEKS*** | ***UNIT TITLE*** | ***LESSON TITLES***  | ***LEARNING OBJECTIVES*** | ***TEACHING METHODS&******TECHNIQUES*** | ***RESOURCES******AND*** ***REFERENCES***  | ***OBERVATION*** |
| ***WEEK 1******17-21/4/2023*** | ***Unit 11: Solving simple algebraic equation and inequalities*** | **Lesson 1:** Like and unlike terms of algebraic expressions and substitutions. **Lesson 2**: Simple algebraic equations with one unknown. **Lesson 3:** Simple algebraic inequalities with one unknown.**Lesson 4**: Problems involving simple algebraic equation or inequalities with one unknown.**UNIT ASSESSMENT** | **Knowledge and understanding**: Describe the process of solving simple algebraic equations or inequalities.**Skills:** * Solve word problems involving simple algebraic equation with one unknown
* Solve simple algebraic inequalities with one unknown.

**Attitudes and values:** Appreciate the importance of algebraic equations and inequalities in solving word problems***Key unit competence***: To be able to form and solve simple algebraic equations and inequalities. |  Written workQuestions and answers Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.Mathematics for Rwanda Schools, Learners book. (MASTEP Page187-204) |  |
| ***WEEK 2******24-28/04/2023*** | ***Unit 12: Regular polygon and Bearing*** | **Lesson 1**: Definition of polygon**Lesson 2**: Examples of regular polygons (equilateral triangles, square, pentagon, hexagon, etc)**Lesson 3**: Elements of regular polygons * Interior angles and their sum
* Exterior angles and their sum
* Side and apothem
* Perimeter
* Area
 | **Knowledge and understanding:*** Define a regular polygon
* Name and identify regular polygons
* Give the formulae used to calculate the perimeter and area of regular polygon
* Explain that direction can be specified using compass points and bearing and express the relationship between them
* Understand and use the angle sum of a triangle to determine the angle sum of a polygon

**Skills:** * Derive the interior angle of regular polygon
* Find the sum of interior / exterior angles of regular polygon using the angle sum of a triangle
* Calculate the length of side, apothem, perimeter and area of regular polygons
* Use bearing to define direction

**Attitudes and values:*** Appreciate the importance of regular polygons in every life activities
* Appreciate the relevance of bearing in daily life (e.g. bearings are used by aircraft pilots and tiling patterns in the built environment).

***Key unit competence***: To be able to use bearing and compass points and understand the relationship between them. To use the angle sum of a triangle to determine the interior angles of regular polygons. | written workQuestions and answers Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.Mathematics for Rwanda Schools, Learners book.(MASTEP Page205-228) |  |
| ***WEEK 3******01-05/05/2023******WEEK 4******08-12/5/2023*** | **Lesson 4**: Bearing and Compass points**Lesson 5**: Tiling / Construction**UNIT ASSESSMENT** |  |
| ***Unit 13: Construction of polygon and nets for cuboids and prisms*** | **Lesson 1** : Construction of polygons using a protractor, a ruler and a pair of compasses . | **Knowledge and understanding:*** Show how to construct polygons with a given properties using a protractor, a ruler and a pair of compasses
* Demonstrate how a 2D shape can be folded to make a 3D and name the 2D shape used.
* Show that the net of a solid is not unique

**Skills**:* Construct polygons using a protractor, a ruler and a pair of compasses
* Design nets to make cuboid and prisms.

**Attitudes and values**:Appreciate that there are likely to be a number of different successful approaches to accurately constructing a polygon or designing a net.***Key unit competence***: To be able to construct polygons using a protractor, a ruler and a pair of compasses. Design nets to make cuboids and prisms. | Written workQuestions and answers Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali. Mathematics for Rwanda Schools.(MASTEP Page 229-260) |  |
| **Lesson 2**: Design nets to make cuboids and prisms.***UNIT ASSESSMENT*** |  |
| ***WEEK 5******15-19/05/2023*** | ***Unit 14: Area bounded by a circle, surface area of cuboids and volume of cylinder.*** | **Lesson 1**: Area bounded by a circle**Lesson 2**: Surface area of cuboids | **Knowledge and understanding:*** State the formula for finding the area bounded by a circle and explain how it can be derived from the circumference of circle
* Explain the surface area of cuboid as area of its nets.
* State the volume of cylinder and explain the meaning of each letter

**Skills**:* Calculate the area bounded by a circle
* Use the nets of cuboid to determine its surface area.
* Calculate the volume of cylinder
* Select the appropriate units when calculating the area and volume.

**Attitudes and values:**Appreciate the difference between area, surface area and volume and the importance of using the correct units.***Key unit competence:*** To be able to calculate the area enclosed by a circle, the surface area of cuboids and the volume of cylinder.  | * Group
* Questions and answers

Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali –Rwanda . Mathematics for Rwanda Schools, Learners book. (MASTEP Page 261-277)  |  |
| ***WEEK 6******22-26/05/2023*** | **Lesson 3**: Volume of a cylinder.***UNIT ASSESSMENT*** |  |
| ***WEEK 7******29/05-02/06/2023******WEEK 8******05-09/06/2023******WEEK 9******12-16/06/2023*** | ***Unit 15: Statistics*** | **Lesson 1**: Collect data to investigate a question.**Lesson 2**: Explore a hypothesis using a tally to complete a frequency table.**Lesson 3**: Represent data using a bar chart or simple pie chart. | **Knowledge and understanding:** * Explain when it is appropriate to use tally and how to obtain frequency from the tally
* Explain how to use pie charts to represent proportions
* Interpret line graph as representation of data.

**Skills:** * Devise a question or hypothesis that require data for its resolution
* Decide what data to collect to answer the question
* Collect data using a table and tally
* Represent data in a bar chart where the total frequency is a factor of 3600
* Interpret the representation of data to draw conclusion.

**Attitudes and values:*** Appreciate the power of data to answer questions and adopt a systematic and organized approach to dealing with data.

***Key unit competence:*** To be able to extend methods for collecting data, representing and interpreting it in order to answer a question or explore a hypothesis. |  Written workQuestions and answers Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali.Mathematics for Rwanda Schools, Learners book. (MASTEP Page 279-292) |  |
| **Lesson 4**: Interpret bar char and pie chart to draw a conclusion***UNIT ASSESSMENT*** |  |
| ***WEEK 10******19-23/06/2023*** | ***Unit 16: Probability*** | **Lesson 1**: Vocabulary of chance and associated ordering* Impossible
* Certain
* Equally
* Likely
* Even chance
* Unlikely

**Lesson 2**: Use data to decide how likely something is to happen. ***UNIT ASSESSMENT*** | **Knowledge and understanding**:Explain that random events have different chances to occur and illustrate each terminology related to probability.**Skills:*** Use the language of chance and associate it with events
* Use likelihood to compare and order events

**Attitudes and values:** Appreciate that the random events cannot be predicted***Key unit competence:*** To be able to order events in terms of likelihood (impossible, equally likely, certain) | * written work
* Questions and answers

Oral and written evaluation. | Rwanda Education Board (2015). Mathematics Syllabus for Upper Primary P4 – P6: Ministry of Education, Kigali. Mathematics for Rwanda Schools, Learners book. (MASTEP Page 293-297) |  |
|  ***GENERAL REVISION***  |
| ***WEEK 11******26-30/06/2023*** |
| ***WEEK 12******03-07/07/2023*** |  ***EXAMINATION*** |
| ***WEEK 13******10-14/07/2023*** |  ***MARKING AND CORRECTION OF EXAMS*** |
| ***WEEK 14*** ***17-19/07/2023*** |  ***NATIONAL EXAMINATION*** |